Chestnut Street Bridge
Chestnut Street over the Schuylkill River
Philadelphia
Philadelphia County
Pennsylvania

HABS No. PA-1054

PHOTOGRAPHS
WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Buildings Survey
National Park Service
Eastern Office, Division of Design and Construction
143 South Third Street
Philadelphia 6, Pennsylvania

Chestnut Street Bridge
Over the Schuylkill River
Philadelphia, Pennsylvania

Owner -

City of Philadelphia

Date of Erection -

1861-1866 - Chief Engineer's drawings, Philadelphia City Hall

Architect -

Strickland Kneass, Engineer

Builder -

Materials -

Granite piers
Cast iron ribs

Present Condition -

Demolished 1958

References -

17 original drawings by Strickland Kneass and Chief Engineer's Office.

Measured drawing made by WPA 1934.

McElroy's Philadelphia City Business Directory for 1867 and 1868, p. 87.

Scientific American, January 10, 1885.

Description -

Date of viewing - October 1957.

Layout - 2-span bridge.

Dimensions -
390 feet long, 42 feet wide and 40 feet above mean water line.

Construction -
Granite abutments with two arches for B. & O. Railroad tracks on east bank. A central granite pier, the base of which is oblong with pointed ends. The upper part is rectangular with a shield on the south side carved with the date 1864.

Each span is of cast iron ribs and uprights of which there are six strengthened with diagonal ribs.

The original study of stresses and load-bearing of the bridge states each rib is capable of carrying 486,500 lbs. with transient load.

Elevation (south) -
The top of the bridge with the road is flat with the central pier. The span on either side is 184' with a low segmental arch. The outer ribs which spring from the abutments rise to the base of the roadbed. There are 16 uprights between the abutments and the head of the arch which runs almost parallel with the horizontal lintel, and there are 17 uprights from the head to the central pier.

Cross Section -
There are six uprights with diagonal ties. In order to widen the bridge, supports were added and the walkways were cantilevered along the top edges of the bridge.

History -
The bridge was acclaimed as one of the handsomest, the strongest and the largest when it was built. The east abutment had to be strengthened in 1884 by Anderson & Barr of New York. The work was accomplished without interfering with the running of the B. & O. Railroad. The City Engineer at that time was S. L. Smedley.

List of original drawings which are in
the office of the Chief Engineer of
the City of Philadelphia

1. Plan and Elevation
   From soundings taken February 24, 1858.
   Signed Strickland Kneass.

2. Details
   Signed Strickland Kneass, Chief Engineer & Surveyor,
   April 1861.

3. Plan and Elevation of Roadway Plates
   Strickland Kneass, May 1861.

4. Railing
   Strickland Kneass, May 1, 1862.
   John H. Dye, Draughtsman.

5. Plan of Piling with Abutments
   May 23, 1862.

6. Plan and Elevation
   1865.

7. Elevation of outside rib at crown of arch

8. Working drawing of face of abutment

9. Structural drawing showing bolting of plates and ribs

10. Detail of construction

11. Transverse section

12. Wash drawing of structure

13. Stress diagram

14. Plates V & VI from the Journal of the Franklin Institute.
    Vol. XLIX, 493rd sec.

15. Work to be done on Abutment - Nov. 1879

16. Pier construction

17. Elevation of Interior Half rib

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